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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/482,956	01/14/2000	Mrudula Kanuri	95-309	7724
20736	7590	04/29/2005		EXAMINER
MANELLI DENISON & SELTER			JAGANNATHAN, MELANIE	
2000 M STREET NW SUITE 700				ART UNIT
WASHINGTON, DC 20036-3307				PAPER NUMBER
			2666	

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/482,956	KANURI, MRUDULA	
	<b>Examiner</b>	<b>Art Unit</b>	
	Melanie Jagannathan	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 14 June 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-22 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All
  - b) Some \*
  - c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

1. Examiner regrets delay in response to amendment filed June 14, 2004 and appreciates Applicant's patience regarding this manner.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6,9-13,16-18, 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vig US 6,262,988 in view of Breitbart et al. US 6,697,338.

Regarding claims 1,2,5,10,11,17-18,20, the claimed integrated network switch having a switching module is disclosed by switch (Figure 3, element 30) with switch CPU and subnets (elements 32 and 34) with hosts 36 and 38 attached respectively. The claimed obtaining from layer 2 packet, layer 3 information having network identifier, a subnetwork identifier and a host identifier, the subnetwork identifier identifying a corresponding one of the subnetworks and the host identifier identifying a transmitting node having transmitted the layer 3 packet information and the claimed storing address information from layer 2 packet, including host identifier in table is disclosed by switch CPU looking beyond layer 2 header of packet to decode layer 3 header in packet and getting both source and destination address, and source and destination subnet information and using subnet to ports table and MAC address to port table (Figure 9). See column 6, lines 13-18, column 8, lines 9-33 and lines 49-67.

Vig et al. discloses all of the limitations of the claims except for plurality of address tables within switching module based on corresponding subnetwork identifier, each of the address tables configured for storing the host identifiers of respective transmitting nodes of a corresponding one of the subnetworks. Breitbart et al. US 6,697,338 disclose a switch belonging to multiple VLANs and maintaining address forwarding tables for each VLAN. See column 12, lines 9-14. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to modify a switch with a plurality of tables for each subnet as in Breitbart et al. One of ordinary skill in the art would be motivated to do this for efficient address mapping.

Regarding claims 3-4, 12-13, 21-22, the claimed network switch with a plurality of network switch ports each connected to a corresponding one of subnetworks is disclosed by switch (Figure 4, element 40) with port 1 connected to a corresponding one subnet (element 42) and port 2 connected to a corresponding one subnet (element 44). Vig discloses all of the limitations of the claims except for the selecting the one address table based on the network switch port having received the layer 2 packet. Vig discloses the use of subnet to ports table and MAC address to port table (Figure 9) based on address information from packet. Breitbart et al. US 6,697,338 disclose a switch belonging to multiple VLANs and maintaining address forwarding tables for each VLAN. See column 12, lines 9-14. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to modify a switch with a plurality of tables for each subnet as in Breitbart et al. One of ordinary skill in the art would be motivated to do this for efficient address mapping.

Regarding claims 6, 9,10,16, the claimed searching table for stored table entry having layer 3 switching information based solely on host identifier and storing the address information from layer 2 packet into table based on determined absence of the stored table entry is disclosed by subnet to ports table (Figure 9) and test to see if source subnet is defined in subnet to port mapping table by switch CPU and switch adding it to list of ports if it absent from table. See column 8, lines 49-59. Vig discloses all of the limitations of the claims except for the selecting the one address table based on the network switch port having received the layer 2 packet. Vig discloses the use of subnet to ports table and MAC address to port table (Figure 9) based on address information from packet. Breitbart et al. US 6,697,338 disclose a switch belonging to multiple VLANs and maintaining address forwarding tables for each VLAN. See column 12, lines 9-14. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to modify a switch with a plurality of tables for each subnet as in Breitbart et al. One of ordinary skill in the art would be motivated to do this for efficient address mapping.

4. Claims 7-8,14-15,19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vig and Breitbart et al. in view of Ullum et al. US 6,266,705.

Vig and Breitbart et al. disclose all of the limitations of the claims except for host identifier as key (claim 7), generating a hash key based on host identifier and searching for stored table entry using generated hash key (claim 8). Ullum et al. disclose a hash circuit (Figure 2, element 216) to map the VLAN data into a key. See column 5, lines 59-67 and column 6, lines 1-9. At the time the invention was made it would have been obvious to a person of

ordinary skill in the art to generate a hash key to search a table. One of ordinary skill in the art would be motivated to do this for efficient searching in table.

***Response to Arguments***

5. Applicant's arguments filed 6/14/2004 have been fully considered but they are not persuasive.

Applicant argues independent claims 1, 10 and 17 specify a network switch having a switching module and configured for switching a layer 2 data packet within a network having a plurality of subnetworks. Examiner submitted references Vig and Breitbart as having this environment. Vig discloses a switched layer-2 network with 2 IP subnets (Figure 3, elements 32 and 34) and switch (element 30) with Host A connected to one subnet and Host B connected to other subnet. See column 5, lines 1-13, lines 18-67, column 6, lines 28-67, column 7, and lines 1-10. Breitbart discloses a layer-2 switching, multiple subnet network. See column 3, lines 27-54, column 4, and lines 22-47.

Applicant argues Vig does not disclose switch with switching module that stores a host identifier in a table or that searches an address table for layer 3 switching information based on host identifier received in layer 2 packet. Examiner interprets claimed switching module as switch CPU that analyzes subnet information in layer 2 packet. The switch CPU learns subnet information from the packets and makes forwarding decisions. See column 6, lines 34-62, column 8, and lines 12-67. Switch CPU analyzes packet (Figures 8A- 8B) and forwards packet using internal mapping table (Figure 9, element 93) with subnet to ports mapping. Examiner interprets mapping table storing port as claimed table with host identifier. See column 9, lines

20-41. Examiner would also like to note Vig discloses eliminating impact on network throughput by having CPU analyzing a small fraction of the traffic while majority of traffic is switched at full wire speed as opposed to Applicant's assertion that network throughput is reduced.

Applicant argues official action is deficient because it fails to identify the claimed feature that each network port receives data from a corresponding subnetwork and Vig teaches multiple ports may be used for a given subnetwork. Examiner contends Vig discloses host 1 communicating with host 2 and packet from port 1 forwarded by switch CPU to ports p2, and p4 by use of mapping table which discloses each network switch port receives data from a subnetwork.

Applicant argues references do not disclose the claimed limitation of each of the independent claims specify that the switching module includes a plurality of address tables for storing layer 3 switching information for respective subnetwork, each address table configured for storing host identifiers for corresponding subnetwork. Moreover, Applicant argues Vig teaches away from above claimed feature due to disclosing that a single subnet may be served by multiple switch ports.

Examiner believes a subnet with multiple switch ports does not teach away from a plurality of tables corresponding to each subnetwork storing host identifiers as there could be a table for each subnet with forwarding information for the multiple switch ports.

Applicant argues Breitbart et al. provides no disclosure whatsoever of a plurality of address tables configured to store host identifiers of transmitting nodes of a corresponding one of subnetworks. As Applicant noted, Examiner repeatedly relied on Column 12, lines 9-14 of

Breitbart et al. but that is because it teaches the repeatedly claimed limitation of a switching module including a plurality of address tables and accessing tables based on subnetwork.

Breitbart discloses a switch belonging to multiple VLANs, interpreted by Examiner as subnets, and maintaining address forwarding tables for each VLAN, the switch uses the particular forwarding table for frames communicated between hosts belonging to the corresponding VLAN.

Examiner relied upon Vig for table with subnet and port information and Breitbart et al. for idea of splitting a table up according to subnetwork and combined the references to form rejection and Examiner additionally asserts motivation of efficient address mapping was not derived using the claimed invention as a template. Compartmentalizing information according to a narrower identifier as opposed to storing in a centralized place entailing lengthier search seems an obvious motivation.

Therefore, rejection is maintained.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Jagannathan whose telephone number is 571-272-3163. The examiner can normally be reached Monday-Friday 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-3163.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ  
CWS



FRANK DUONG  
PRIMARY EXAMINER